

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 3, 5, 10, 12, 14, and 15 are pending, with Claims 3, 5, 12, 14, and 15 amended by the present Amendment. Claims 6, 8, 16, 17, 19, 21-24, and 26 are cancelled by the present Amendment.

In the Official Action, Claims 1, 3, 5, 6, 8-10, 12, 14-17, 19, 21-24, 26 and 28-30 were rejected under 35 U.S.C. § 112, second paragraph; Claims 1, 3, 8, 10, 12, 16, 17, 19, 23, 24 and 26 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Publication 2002/0036377, (now U.S. Patent 6,824,131, hereinafter Togashi) in view of Japanese Patent Publication No. 2002-68511 (hereinafter Ito); Claims 5, 6, 14-15, 21-22 and 28-30 were rejected under 35 U.S.C. § 103(a) as being obvious over Togashi and Ito in view of an article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan" (hereinafter Yasufuku); and Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Togashi and Ito in view of U.S. Patent No. 6,688,590 (hereinafter Billings).

Claims 1, 3, 5, 10, 12, 14, and 15 are amended as requested in paragraph 1 of the Official Action so as to overcome the rejection under 35 U.S.C. § 112, second paragraph.

Independent Claims 1 and 10 are amended to more clearly describe and distinctly claim Applicant's invention. Support for these amendments are found in Applicant's originally filed specification. No new matter is added.

In Togashi, the tilt member 6, including the contact face, is integrally molded of a synthetic resin.<sup>1</sup> In at least the third through fifth embodiments of Togashi, the contact face device is covered by a metal plate or carbon/glass fiber reinforced hard synthetic resin and in

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<sup>1</sup> Togashi, column 2, line 64 – column 3, line 4: "In the sheet feeder configured as described above, since the tilt member 6 has a complicated shape, it is preferable that the tilt member 6 is integrally molded of a synthetic resin."

contact with a sheet feed roller.<sup>2</sup> Because the contact face is covered, the contact face is not in direct contact with the sheet roller as recited in Applicants' amended claims. However, in at least the first and second embodiments of Togashi, the tilt member 6 is not covered by a metal plate.

However, in paragraph [0023] of Applicants' published application, and now recited in amended independent Claim 1, there is described a first embodiment where the whole tilt member 56 is a) formed from polybutylene terephthalate (PBT) or polyethylene (PE), *or* b) where *only* the tilt face 56a and a contact face 56b portions of the tilt member 56 that are in contact with the sheet feed roller 54 are formed from PBT or PE.

In a second embodiment described in paragraph [0047], and now recited in amended independent Claim 10, the tilt member 66 includes a tilt part 67 and a support part 68. The tilt part 67 includes a tilt face 67a where the sheet contacts the tilt part 67 and a contact face 67b contacting the sheet feed roller 54. The tilt part 67 is formed from a metal or other high durability material. For example, the tilt part 67 is formed from poly-ether-ether-ketone (PEEK), polyimide (PI), or an alloy that includes polyimide (PAI). The tilt member 66 also includes a support member 68 that may be formed of the same material as the tilt part 67 *or may be formed from a lower-cost material*, for example, ABS resin, polyacetal (POM), polybutylene terephthalate (PBT), or polycarbonate (PC).

Togashi does not disclose or suggest an apparatus where a contact face is made up of one material and a tilt face is made by another material as recited in amended Claim 1.

Togashi also does not disclose or suggest an apparatus having tilt member including a tilt part and a support part each made up of different materials as recited in amended Claim 10.

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<sup>2</sup> In the sheet feeder described above, the tilt member preferably has a contact face, the length of which is smaller than an axial length of the sheet feed roller, and more preferably is formed of a synthetic resin and includes a metal plate for covering at least the contact face with the sheet feed roller. The metal plate is preferably elastic. The elastic metal plate may be mounted from the tilt face so as to surround the tilt member on both upper and lower sides.

Applicants' claimed multi-material device has superior abrasion resistance and manufacturing cost advantages.

Because Togashi explicitly describes a uniform construction of the tilt member, Applicants submit that Togashi teaches away from the claimed multi-material tilt member/device recited in amended independent Claims 1 and 10. Thus, Togashi may not be relied upon for a basis of rejection of Claims 1 and 10.

Ito describes a device having a separation pad made of polyethelyene and having superior abrasion resistance. Applicants first note that the separation pad of polyethelyene is not a tilt member. Furthermore, Ito does not cure the deficiencies of Togashi in that Ito also does not disclose or suggest the use of multiple synthetic materials, let alone Applicants' claimed multi-material tilt member/device.

Applicants submit that Yasufuku also does not cure the deficiencies of Togashi in that Yasufuku also does not disclose or suggest multi-material devices, let alone Applicants' claimed multi-material tilt member/device.

Furthermore, while Yasufuku discloses that PBT has a superior surface hardness property, Yasufuku does not disclose or suggest surface hardness features of PE, PEEK or PI. Figure 1 of Yasufuku discloses the heat distortion temperature of various polymers, including PEEK. Figure 2 of Yasufuku discloses the tensile strength of various polymers, including PEEK. Tables I and II (part 2, page 9 and page 11) of Yasufuku lists various properties of PEEK, but none of these properties equal surface hardness. Page 10 of Yasufuku discusses PEEK, and notes that applications of PEEK are confined to common parts (e.g., bobbins and sockets), citing to another reference (Nakanishi and Todo) for predictions of wider use. Page 11 of Yasufuku discusses PI, and notes that PI is very difficult to mold, thereby discouraging one skilled in the art to consider using PI in the manner recited. This discussion of PI points to additional references for a discussion of the use of PI in Japanese manufacturing.

Applicants submit that one skilled in the art would recognize that abrasion resistance is different from mechanical strength and surface hardness. Thus, Yasufuku makes no reference to surface abrasion of PE, PEEK or PI, Applicants submit that one skilled in the art would not find motivation in Togashi or Yasufuku to combine these references to arrive at Applicants' claimed tilt face and/or contact face made of PE, PEEK or PI. The fact that one polymer is superior in terms of tensile strength does not mean that the same polymer is superior in terms of abrasion resistance. For example, Table 1 on page 8 of Yasufuku indicates that PC is superior to PBT in terms of tensile strength and flex strength, while PBT is superior to PC in terms of abrasion resistance. Without a discussion of the abrasion resistance PE, PEEK or PI, Applicants submit there is no motivation to combine Togashi or Yasufuku to arrive at Applicants' claimed invention.

MPEP §706.02(j) notes that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Also, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir.1991). Without addressing the first two prongs of the test of obviousness, Applicants submit that the applied references each fail to disclose all the features of Applicants' claimed invention.

Also, while the scope of Applicants' amended claims is different from the claims addressed in the outstanding Official Action, rendering moot the assertion of *prima facie* obviousness, Applicants nonetheless point to MPEP 2144.08(II)(B) ("Obviousness of Species

When Prior Art Teaches Genus”) which recites that if a *prima facie* case of obviousness is established, the burden shifts to the applicant to come forward with arguments and/or evidence to rebut the *prima facie* case. See, e.g., *Dillon*, 919 F.2d at 692, 16 USPQ2d at 1901. Rebuttal evidence and arguments can be presented in the specification, *In re Soni*, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995), by counsel, *In re Chu*, 66 F.3d 292, 299, 36 USPQ2d 1089, 1094-95 (Fed. Cir. 1995), or by way of an affidavit or declaration under 37 CFR 1.132, e.g., *Soni*, 54 F.3d at 750, 34 USPQ2d at 1687; *In re Piasecki*, 745 F.2d 1468, 1474, 223 USPQ 785, 789-90 (Fed. Cir. 1984). Here, Applicants’ rebut any current or future assertion of *prima facie* obviousness in view of Applicants’ originally filed specification which documents the results of extensive experimentation that showed the claimed materials provided unexpected results.<sup>3</sup>

MPEP 2144.08 describes that rebuttal evidence may include evidence that the claimed invention yields unexpectedly improved properties or properties not present in the prior art. Here, as discussed below, it is only through Applicants’ extensive experimentation that the benefits of the claimed materials, as compared to other synthetic resins, were identified. That is, in an experiment documented in Applicants’ specification and related to the invention recited in Claim 1, it was shown that a tilt member formed from PE or PBT demonstrated superior wear resistance because tilt members made of these materials did not fall below the non-feed line L until about 110,000 sheets have been printed. In contrast, a tilt member formed from PC did not demonstrate good wear resistance as the tilt member fell below the non-feed line when about 10,000 sheets were printed. Therefore, experimental results showed that superior performance is achieved if at least the tilt face 56a and the contact face 56b are formed from PE or PBT. Further analysis showed that the entire tilt member 56 may be formed from either PE or PBT will reduce manufacturing costs.

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<sup>3</sup> Specification, paragraphs 24-26 and Figure 5; see also paragraphs 36-37 and Figure 9.

In an experiment documented in Applicants' specification and related to the invention recited in Claim 10, it was shown that conditions were similar to the conditions of the previous experiment except that the tilt member was formed from one of aluminum (Al), poly-ether-ether-ketone (PEEK), polyimide (PI), or an alloy that includes polyimide (PAI). In FIG. 9, the line B is the empirically determined non-feed line corresponding to 0.2 mm wear from the initial thickness. These experiments showed that a tilt member formed from the above-listed material has excellent wear resistance because the tilt member did not fall below the non-feed line until about 1,000,000 sheets. Therefore, these experiments show that the second embodiment has better wear resistant than the first embodiment and may be more cost-effective for use in tilt members in high-duty cycle, large sheet feed apparatus. In other embodiments demonstrating excellent wear resistance, a glass fiber or another material can be added to the PBT, PE, Metal, PEEK, or PI. In yet other embodiments, alloys that include PBT, PE, Metal, PEEK, or PI can also be used.

MPEP 2144.08 describes that a showing of unexpected results for a single member of a claimed subgenus, or a narrow portion of a claimed range would be sufficient to rebut a *prima facie* case of obviousness *if* a skilled artisan "could ascertain a trend in the exemplified data that would allow him to reasonably extend the probative value thereof." *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980) (Evidence of the unobviousness of a broad range can be proven by a narrower range when one skilled in the art could ascertain a trend that would allow him to reasonably extend the probative value thereof.). But see, *Grasselli*, 713 F.2d at 743, 218 USPQ at 778 (evidence of superior properties for sodium containing composition insufficient to establish the non-obviousness of broad claims for a catalyst with "an alkali metal" where it was well known in the catalyst art that different alkali metals were not interchangeable and applicant had shown unexpected results only for sodium containing materials); *In re Greenfield*, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA

1978) (evidence of superior properties in one species insufficient to establish the non-obviousness of a subgenus containing hundreds of compounds); *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972) (one test not sufficient where there was no adequate basis for concluding the other claimed compounds would behave the same way). However, an exemplary showing may be sufficient to establish a reasonable correlation between the showing and the entire scope of the claim, when viewed by a skilled artisan. See, e.g., *Chupp*, 816 F.2d at 646, 2 USPQ2d at 1439; *Clemens*, 622 F.2d at 1036, 206 USPQ at 296. Here, Applicants' extensive testing provides evidence of unexpected results of certain species of synthetic resin as compared to other species of synthetic resin. More generally, Applicants' extensive testing provides evidence of unexpected results of certain species of synthetic resin as compared to the genus of synthetic resins.

Applicants acknowledge that MPEP 2144.08 also recites that evidence of an unexpected property may not be sufficient regardless of the scope of the showing. This is explained as follows: ***Usually, a showing of unexpected results is sufficient to overcome a prima facie case of obviousness.*** See, e.g., *In re Albrecht*, 514 F.2d 1389, 1396, 185 USPQ 585, 590 (CCPA 1975). However, where the claims are not limited to a particular use, and where the prior art provides other motivation to select a particular species or subgenus, a showing of a new use may not be sufficient to confer patentability. See *Dillon*, 919 F.2d at 692, 16 USPQ2d at 1900-01. Accordingly, each case should be evaluated individually based on the totality of the circumstances. Here, Applicants submit that the claimed invention *is* limited to a particular use (i.e., for a tilt device within an image reproduction device). Thus, Applicants submit that the previously described showing of unexpected results is sufficient to overcome any existing or future assertion of *prima facie* obviousness.

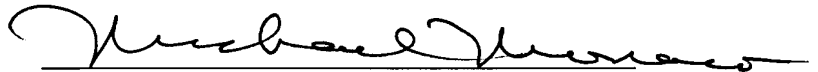
Based upon the foregoing discussion of Applicants' experimentation and corresponding experimentation results, Applicants submit that further rejection of the claims

based upon the applied references is an improper hindsight reconstruction of Applicants' claimed invention.

Accordingly, in view of the present amendment and in light of the previous discussion, Applicant respectfully submits that the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

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